GRAPHTEC GL7-HV-UM-151

GL7-HV

# GL7000 High Voltage Module

# USER'S MANUAL

Thank you very much for buying this GRAPHTEC product.

This item is a standalone measuring module. Please use it by installing it on the main module .

These directions describe preparations and cautions before measurement.

**For safe use, please make sure to read "4 Regarding Maximum Input Voltage"**

**For the details concerning operation procedures etc., read the User's manual recorded on the CD-ROM (included with the main module)**

You can use in GL7000 firmware (V1.10) and GL-Connection(V1.10) or later.

For details, please read the "GL7000 upgrade method" included in CD-ROM (bundled GL7-HV).

### Confirmation of the exterior

After opening the package, please confirm that there are no problems (scratches and dirt) on the exterior before use.

### Confirmation of the attached items.

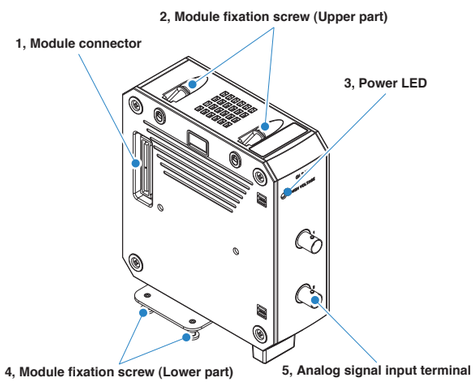
● User's manual (this book): 1 ● Upgrade CD-ROM: 1

If by any chance faults are found, please contact the store where you bought the item.

*** Please note that items mentioned in this book may change without prior notice.**

## 1 Part Names

**Explanation of the module's part names and functions.**


2, Module fixation screw (Upper part)
1, Module connector
3, Power LED
4, Module fixation screw (Lower part)
5, Analog signal input terminal

**1, Module connector.....** Connector for connecting all kinds of modules.

**2, Module fixation screw..... (Upper part)** Fixation screw for the adjoining module. To prevent drop off, do not remove from the module.

**3, Power LED.....** The Power LED will light up green when the power has been turned on and the module has been recognized.

**4, Module fixation screw..... (Lower part)** Fixation screw for the adjoining module.

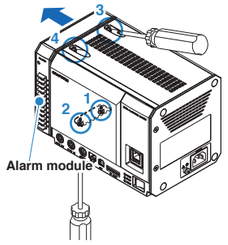
**5, Analog signal input terminal..** Terminal for inputting analog measurements.

## 2 How to Install Module

**This explains how to attach the module to the main module.**

**⚠ CAUTION When installing or removing the module, please make sure that the power is off.**

1, Remove the fixation screws (4 places on the upper part and lower parts), place the alarm module parallel to the main module and slide it in the direction of the arrow.




(1) Remove the fixation screws from the 2 places on the lower part.

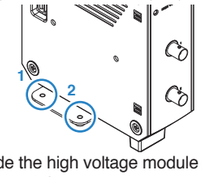
(2) Loosen the drop-off prevention screws on the upper part in 2 places.

(3) Removing the alarm module.

**⚠ CAUTION**

**Slide it in the direction of the arrow. If you pry it at an angle there is a risk of damaging the connector.**

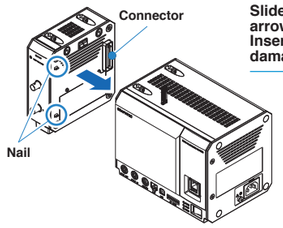
2, Remove the high voltage module's fixation screws (2 places on the lower part).



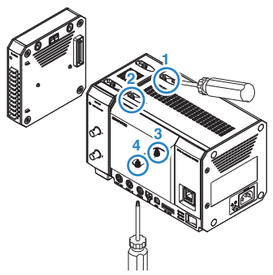
3, Slide the high voltage module parallel to the main module and connect the connector.

**⚠ CAUTION**

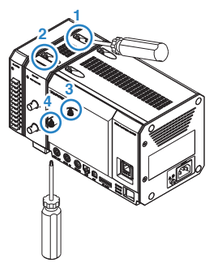
**Slide it in the direction of the arrow.**
**Inserting it at an angle may cause damage to the nails.**




4, Fix the high voltage module and the main module in place with the screws. (4 places on the upper and lower parts)



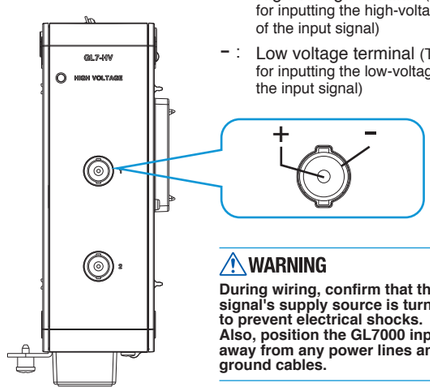
5, Similarly, install the alarm module on the last part and fix it with screws.



**During installation, a 4kgf.cm screw tightening torque is recommended.**

## 3 How to Connect to Analog Signal Terminal

**This explains how to connect the input cable.**



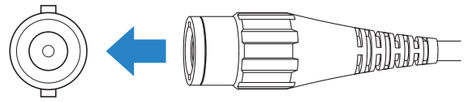

+ : High-voltage terminal (Terminal for inputting the high-voltage side of the input signal)

- : Low voltage terminal (Terminal for inputting the low-voltage side of the input signal)

**⚠ WARNING**

**During wiring, confirm that the signal's supply source is turned OFF to prevent electrical shocks.**
**Also, position the GL7000 input cable away from any power lines and ground cables.**

**Voltage input**



**Insulated BNC Connector** **Insulated BNC cable**
**(RIC-142/143 cable is recommended.)**

## 4 Regarding Maximum Input Voltage

**To avoid break-downs or short-circuiting accidents, please make sure to abide by the items written below.**

### ● Maximum input voltage

- In case the input voltage exceeds the specifications, the circuit at the input part will break down so even if the input voltage exceeds the specifications only for an instant, please don't input.
- Please take care that no static electricity is applied on the analog signal input terminal.

**<Input terminal (+) /Input terminal (-) interval (A etc. on the figure below)>**

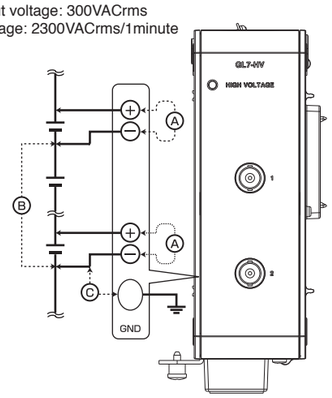
Maximum input voltage : 1000Vp-p

**<Input terminal (-)/Input terminal (-) interval (B etc. on the figure below)>**

Maximum input voltage: 300VACrms
Withstand voltage: 2300VACrms/1minute

**<Input terminal (-)/GND terminal interval (C etc. on the figure below)>**

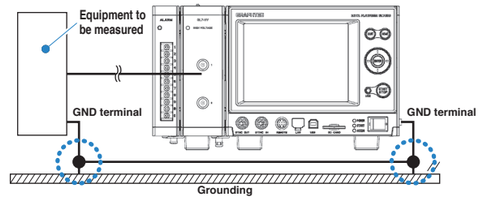
Maximum input voltage: 300VACrms
Withstand voltage: 2300VACrms/1minute



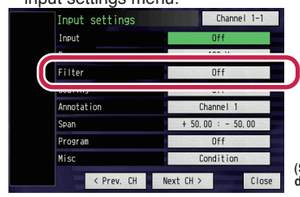

## 5 Noise Countermeasures

**In case the measured values fluctuate due to exogenous noise, the following measures are recommended.**
**(Depending on the type of noise, the result may change.)**

- **Make absolutely sure to ground the chassis GND of the measuring object**
  Absolutely making sure to ground the chassis GND of the measuring object to a favorable ground may have an effect.
- **Connecting the chassis GNDs of the measuring object and the instrument**
  Connecting the chassis GND of the measuring object and the GND terminal of the main module with an electrical cable as short and thick as possible, and further gaining potential equalization by grounding it may have an effect.




- **Using the filter function of the instrument**
  Setting the filter to anything but OFF on the main body's input settings menu.




(Screen for when the optional display module is connected)

For details, please refer to the User's manual recorded on the CD-ROM (included with the main module)

## 6 Specifications

**GL7-HV (High Voltage Module) specifications**

| Item | Contents |
|---|---|
| Input ch number | 2 ch/1 module |
| Input terminal shape | Insulated BNC Connector |
| System | All ch insulation, simultaneous sampling, unbalanced input |
| Sampling interval | 1, 2, 5, 10, 20, 50, 100, 200, 500 usec,<br>1, 2, 5, 10, 20, 50, 100, 125, 200, 250, 500 msec,<br>1, 2, 5, 10, 20, 30 sec, 1, 2, 5, 10, 20, 30 min, 1hour |
| Built-in RAM | 2,000,000 data |
| Input coupling | DC, AC, DC-RMS, AC-RMS |
| Measurement range | DC, AC : 2, 5, 10, 20, 50, 100, 200, 500, 1000V F.S.<br>DC-RMS, AC-RMS : 1, 2, 5, 10, 20, 50, 100, 200, 500Vrms F.S.<br>Crest Factor: (Range between 1and 200Vrms) 4 or less (Range of 500Vrms) 2 or less |
| Measurement accuracy (23°C±5°C)<br>* 30 minutes more after power-up<br>GND connection<br>Filter Line (DC only) | DC, AC : ±0.25% of F.S.<br>DC-RMS: Sine wave ±0.5% of F.S. (20Hz≤F≤1kHz)<br>±1.5% of F.S. (1kHz<F≤20kHz)<br>AC-RMS: Sine wave ±0.5% of F.S. (100Hz≤F≤1kHz)<br>±1.5% of F.S. (1kHz<F≤20kHz)<br>Response time: 500ms or less (Crest Factor 4 or less) |
| A/D converter | System: sequential comparison system<br>Resolution: 16-bit<br>Effective Resolution(DC,AC) : Approx. ±Range 1/40,000<br>(DC-RMS,AC-RMS) : Approx. Range1/20,000 |
| Temperature coefficient | Gain: ±0.01% of F.S./°C<br>Zero: ±0.02% of F.S./°C |
| Input resistance | 1 MΩ ±5% |
| Input signal source resistance | 1 kΩ or less |
| Maximum input voltage | Input terminal(+) /Input terminal (-) interval : 1000 Vp-p<br>Input terminal(-) /Input terminal (-) interval : 300 VACrms<br>Input terminal (-)/GND terminal interval: 300 VACrms |
| Withstand voltage | Input terminal(+) /Input terminal (-) interval: 2300 VACrms/1 minute<br>Input terminal (-)/GND terminal interval: 2300 VACrms/1 minute |
| Insulation resistance | Input terminal (-)/GND terminal interval: 50 MΩ or more (at DC500 V) |
| Common mode rejection ratio | 90 dB or more (50/60 Hz signal source 300Ω or less) |
| S/N (Noise) | 48 db or more (+/- at short) |
| Frequency response | DC Coupling : DC~200 kHz (+1/-3 dB)<br>AC Coupling : 4 Hz~200 kHz (+1/-4.5 dB) |
| Filter | LPF : OFF, Line (1.5 Hz), 5 Hz, 50 Hz, 500 Hz, 5 kHz, 50 kHz<br>(Attenuation) -3 dB (-5.2 dB to -1.4 dB) /6 dB oct |
| External dimensions [WxDxH] (approximate) | 49.2 × 136 × 160 mm (not including protruding parts) |
| Weight | 740g |

* Crest factor = Peak value / Effective valu

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